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# Use of Social Media to Enhance Consumers' Options for Food Quality in the United Arab Emirates (UAE)

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**Abstract:** The objective of this research was to study the behavior and attitudes of consumers from the United Arab Emirates towards using the World Wide Web (WWW) for ordering food online, as well as their perception of social media's (e.g., Facebook, Twitter, Instagram, and WhatsApp) impact on increasing their knowledge about their food quality options. This research question targets social media's role in aiding consumer decision-making with regard to enhanced food quality choices and thus enhanced food security. The results of this study showed that about 50% of the respondents frequently use a website to order food online in the study area. The analysis of the survey results showed a strong correlation between the frequency of food ordered online by consumers and the number of consumers who sought specific information about food quality, such as those who wished to obtain information about special diets for both medical and non-medical purposes. A strong correlation was also found to exist between the frequency of ordering food online and consumers who often inquired about buying organic food. Furthermore, the authors found the potential and the need for more transparency and enhancement when exchanging information between online food providers and consumers, in order to achieve the country's food security goal of better consumer access to food quality information.

**Keywords:** food security; food quality; social media; United Arab Emirates

## 1. Introduction

Consumers in today's world increasingly rely on the internet to obtain information about food, in order to compare various purchasing alternatives and maximize their knowledge before making important decisions about food purchases. Nowadays social media is highly accessible via handheld devices that enable the consumer to access plenty of information. Individuals and/or groups who may never meet in person are now able to influence the attitudes and behaviors of others including purchasing decisions, for instance [1]. However, this makes sorting valid and accredited information about food quality a difficult task. Users of social media are also considered potential purchasers, so the food industry has started marketing food online intensively. This information and these services provided by online social media enables consumers to interact with each other in accessing and exchanging information, comments, reviews, and rankings of product quality that can help them make rational purchasing decisions [2]. The consumer's physical and social environment influence his/her purchasing decisions and can make a difference to the satisfaction of his/her needs and the final outcome.

The following carefully reviews the current state of the research, and identifies the key publications cited in connection with the use of social media to enhance consumer options when making decisions regarding food purchases. This review considered learning from previous studies, the methods used, and findings in relation to all actors involved in the use of social media and its impact on consumers

exchanging information about food quality and their decisions to purchase food online. This includes the food consumers themselves, the social media service providers, food distributors, food and health organizations, nutrition educators, as well as agricultural businesses. Elghannam et al. (2017) [3] studied the contribution of social networks towards the development of short supply chains in the Spanish agri-food sector. These authors indicated that dealing directly with consumers through social media shortens the food supply chains, which offers new opportunities for small and medium-sized enterprises. In this context, the increase in the use of social media offers producers the potential to build new short chains to promote and sell their food products in a rapid, low-cost and direct way. The benefits of social networks include a contribution towards reducing market margins by enhancing direct sales, facilitating the identification of customer profiles, and meeting their preferences in the way they perceive certain products. Contrary to this finding by Elghannam et al. [3], Desmarchelier et al. [4] examined how social media has evolved the way in which information spreads within a population. The authors built an agent-based model and conducted a behavioral survey on information diffusion following a food scare in China (with a sample of  $n = 586$ ), where responses in diffusion networks were simulated with and without access to social media. The authors concluded that the use of social media does not increase the likelihood of informational spread or cascades. Rather, these results suggest a significant change in the typology of diffusion networks. Social media facilitates the formation of feedback loops through the emergence of multiple links, which can potentially lead to cases of market and social panic. This publication summarized the potential negative impact concerning the exchange of food safety concerns between social media users. Abdullah et al. (2014) [5] discussed both the positive and negative sides of consumers using social media to exchange information about fast food in Malaysia, as they indicated that social media such as Facebook and Twitter are fast becoming the primary source of information, especially among generation Y (the generation born in the 1980s and 1990s) in Malaysia. Positive postings and reviews of a fast food brand may help build a firm's reputation and increase sales, but negative issues, rumors and lies may have the opposite effect. Liu and Lopez [6] estimated the impact of social media exposure on consumer valuations of product characteristics. The authors applied the equilibrium model, which was developed by Berry et al. [7], to sales data collected for 18 carbonated soft drink brands sold in 12 cities over 17 months (June 2011 to October 2012) and social media conversations on Facebook, Twitter and YouTube. The empirical results of this study showed that social media exposure was a significant driver of consumer behavior through altering the evaluation of product characteristics and purchasing choices. Shan et al. (2015) [8] examined the use and impact of social media on the interactive communication between consumers and food and health organizations in the United Kingdom and Ireland. The study used interviews with 16 professionals working at national organizations to answer the research question. The authors argued that social media penetrated and uncovered new opportunities for food organizations to interact with consumers. More opportunities were recommended to be explored, such as making the design content-based and using social media to learn more about the consumers. In this study, Shan et al. [8] summarized the challenges addressed by such national health and food professional organization in the United Kingdom and Ireland, where the authors found that ineffectiveness of social media providers in dealing with consumer queries and complaints. Tobey et al. (2014) [9] indicated that social media can be quick, low-cost, and enables nutrition educators to directly reach out to their nutrition programs' audience and targeted beneficiaries. The authors of this study proposed a guideline that includes specific steps to be considered by nutrition educators to achieve an effective use of social media. These steps include conducting a needs assessment, strategically selecting a social media site, creating a plan that encourages meaningful interaction with consumers, integrating a social media team such as designers and programmers, and regularly collecting social media use measurements. Widener and Li (2014) [10] used spatially collected Twitter data from across the United States to monitor the prevalence of healthy and unhealthy food consumption. This study used a data-mining framework applied to data extracted from the U.S. census tracts with low access to supermarkets and low-income residents who are at risk of maintaining less nutritious diets (i.e.,

food desert areas). The study pointed out a convincing spatial correlation between the increased prevalence of unhealthy food in food desert areas at the national scale when consumers are exchanging Twitter messages about unhealthy food. Finally, Kelley and Hyde [11] published a paper entitled “Social Media for Value-Added Business”. The authors conducted an Internet survey in the year 2010. This survey included 1210 consumers who had active Facebook, Twitter, or blog accounts to investigate their use of social networks and their attitudes towards direct marketers who utilize these tools. The authors found that the frequency of using online tools is a determinant of their social media preference. For example, based on the number of servings of value-added processed products consumed, those who consumed three or more servings were more likely to believe Facebook (42.9%) was a good fit for them compared to those who consumed one to two servings (22.4%). The results can assist direct marketers and other agricultural businesses in identifying the social networking tools that best appeal to their target markets. Clearly, several studies have considered the analysis of new opportunities for consumers to exchange information about food quality and the positive impact of such social media use on the consumers’ food purchasing options. However, previous studies also indicated precautions and challenges in relation to information exchange about food quality via social media at the different food purchase and distribution levels.

The aim of this study was to assess consumer knowledge, engagement, and interaction when using online activities and identify the factors that affect consumer attitudes regarding their food purchasing decision process. In other words, the objective of this research was to study the behavior and attitudes of consumers in the United Arab Emirates towards using the World Wide Web (WWW) for ordering food online, as well as their perception of the impact of social media (e.g., Facebook, Twitter, Instagram, and WhatsApp) as well as local, online food ordering services. Possible impacts include increasing their knowledge about food quality options and therefore enhancing food security.

## 2. Materials and Methods

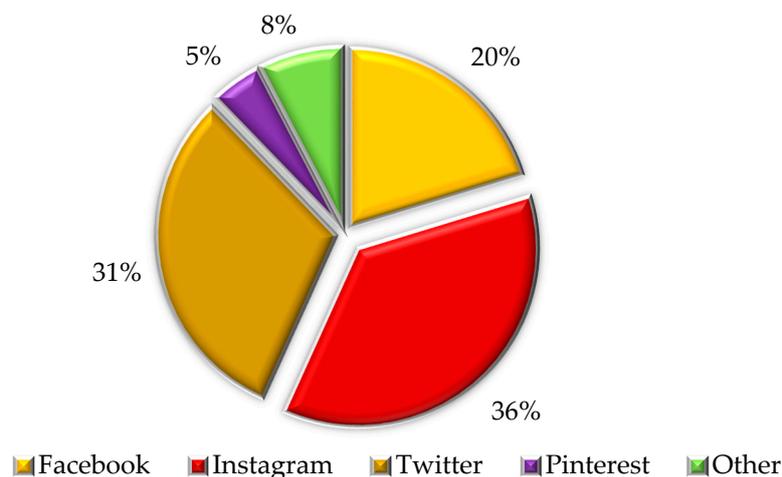
The study examined the correlation between obtaining information about special diets or organic food and the consumers’ socio-economic characteristics. A survey was designed within this study to capture customer responses describing their experiences when buying food online, the interconnection with social media and how these decisions are influenced by online communication. The study also examined the correlation between obtaining information on special diets or organic food and the frequency with which the consumers’ used social media to obtain information about food quality.

The survey was conducted among online social media users (Twitter, Facebook and Instagram). A random sample of 278 households in the study area within the United Arab Emirates were interviewed either face-to-face or by using online survey tools. The survey solicited the information from the heads of households. The questionnaire designed to address the research objective included 27 questions, which included both multiple choice and open-ended questions. The questionnaire was divided into four sections. The field survey was carried out during the three months from September to December, 2016. The first section solicited information about the respondents’ access to World Wide Web (WWW) services, the frequency of their use of specific social media platforms (Twitter, Facebook and Instagram), their use of social media to order food online, their use of social media to access food quality information, their use of social media as a source for this information compared to alternatives (for example, phone calls), the types of food they order online and the amount of money that they spend on food ordering. The second section of the questionnaire was focused on obtaining information about the respondents’ satisfaction, attitudes and behaviors after using social media as an alternative to order food online. This section also asked questions about the risks and challenges the consumers may face when they decide to order food online. The third section of the questionnaire was devoted towards the collection of information about the respondents’ special dietary requirements or needs, for medical or non-medical reasons. This section also asked the respondents questions about their perception of using social media to enhance their decision-making when purchasing food in accordance with these special diets, or organic food, for instance. The last section of the questionnaire gathered information

about the household demographics (i.e., socio-economic characteristics), such as age, monthly income, family size, level of education, marital status, and head of the household employment status in order to use this information for the study's correlation analysis. To achieve the research goals, several analytical tools were considered, including frequency graphs, data tabularization, summarization, and interpretation of the descriptive statistics. The software SPSS. was used to perform the correlation analysis, and the results are reported below.

### 3. Results

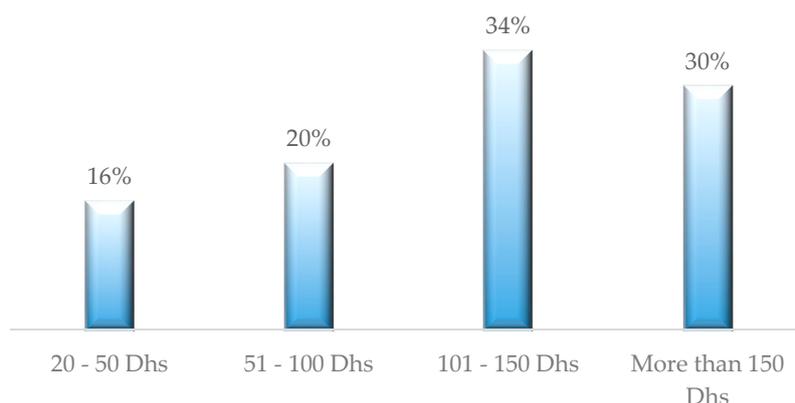
Based on the results from the first section of the questionnaire survey, Figure 1 illustrates the survey respondents' membership of each type of social media platform/software. Slightly more than a third (36%) of the respondents used the Instagram social media platform to order food online and/or obtain information about food quality. This is due to the fact that Instagram, in contrast to other social media software, offers a food product visualization feature that makes the exchange of information simpler. Such visualization serves as an alternative to knowledge the consumers may obtain when purchasing food products at a physical store, such as a grocery store (i.e., consumers can relate quality to color, shape, and other visualized features). Instagram was followed by the Twitter platform (31%) and, thirdly, Facebook (20%).



**Figure 1.** Respondents' memberships classified by type of social media provider.

The second section of the survey asked questions about the respondents' level of satisfaction and behavior, including their spending on purchasing food online.

For instance, one of the questions included in the questionnaire asked the respondents about the amount their household (family) paid to purchase food online in their most recent online food order. About a third of the consumers (34%) spent an amount that ranged between 101 to 150 UAE Dirhams (Dhs, the exchange rate is 1 USD = 3.658 Dhs). This was followed by approximately another third (30%) of the respondents who spent an amount that exceeded 150 Dhs. Fewer consumers spent 100 Dhs or less in their latest online food order. This indicates that more than half of the survey respondents have ordered online and were willing to spend a considerable amount of money for the service—see Figure 2.



**Figure 2.** The Amount of Purchase where Exchange Rate is 1 USD = 3.65 Dirhams Spent in the Latest Food Order Respondents Posted Online.

### 3.1. The Correlation between the Frequency of Purchasing Food Online and the Consumers' Socio-Economic Characteristics

The results obtained from the third and the fourth sections of the questionnaire were used to analyze the correlations between the respondents' frequency of purchasing food online and selected explanatory variables. Table 1 shows the correlation between the survey respondents' frequency of purchasing food online and their socio-economic characteristics. This table shows that the correlation between the frequency variable (i.e., consumers' reliance on ordering food online) and specific socio-economic variables are highly significant at the 99% level of confidence. These highly significant variables were found to be head of the household, age, gender, and marital status. However, the sign of the correlations has to be considered, because the correlation results showed a negative sign for the correlation between the frequency of ordering food online and age and marital status of the head of the household, but a positive sign for the correlation between frequency and the gender of the head of the household. In other words, it is expected that a younger head of the household, a male head of the household, and unmarried respondents are most likely to order food online compared to other households with different socio-economic characteristics.

**Table 1.** Correlation between the survey respondents' frequency of purchasing food online and the consumers' socio-economic characteristics.

Dependent Variable	Frequency	Income Level of Household	Family Size	Education Level	Age	Gender	Marital Status
Pearson Correlation	1	−0.079	0.004	−0.079	−0.322 **	0.167 **	−0.233 **
Sig. (2-tailed)		0.19	0.943	0.188	0	0.005	0
N	276	276	267	276	271	274	275

\*\* . Correlation is significant at the 0.01 level (2-tailed).

### 3.2. Correlation between the Frequency of Purchasing Food Online and the Consumer's Special Requests

The results obtained from the third section of the questionnaire were also used to analyze the correlation between the respondents' frequency of purchasing food online and the consumer's special requests, such as consumers who request information about special diets or would like to order organic food. Table 2 shows the analysis of the survey results, which indicate the presence of a strong correlation between the frequency of ordering food online and the number of consumers who seek specific information about food quality, such as those who would like to obtain information about special diets for both medical and non-medical reasons. This correlation was also found to exist between the frequency of ordering food online and the number of consumers who often inquire about

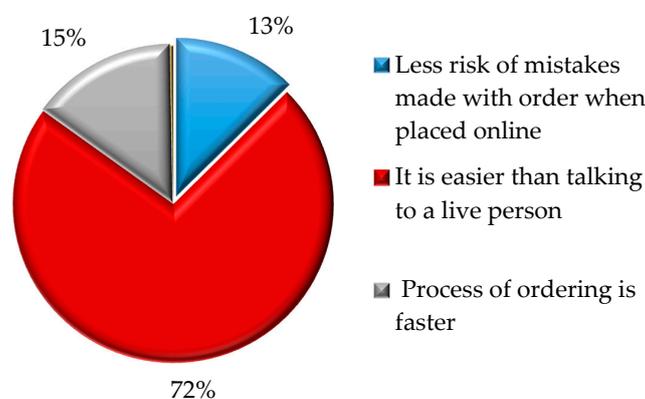
buying organic food. Meanwhile, no significantly strong correlation exists between the frequency of ordering food through social media and the number of respondents who ordered food online during the last month. This indicates that there are specific categories of consumers who prefer ordering food online to satisfy special requests who require a greater exchange of information than the typical consumer who purchases food from all outlets, such as shopping physically or ordering by phone.

**Table 2.** Correlation between frequency of purchasing food online and consumer special requests.

		Frequency	Spending	Special Diet Information from Web	Information on Organic	Diabetic	Food Ordered Online in the Last Few Months
<b>Frequency</b>	Pearson Correlation	1	0.392 **	0.213 **	0.323 **	−0.065	0.020
	Sig. (2-tailed)		0.000	0.000	0.000	0.283	0.745
	N	276	276	274	275	275	275
<b>Spending</b>	Pearson Correlation	0.392 **	1	0.078	0.116	−0.028	−0.138 *
	Sig. (2-tailed)	0.000		0.197	0.054	0.639	0.021
	N	276	278	275	276	277	277
<b>Special Diet Information from Web</b>	Pearson Correlation	0.213 **	0.078	1	0.566 **	−0.049	−0.020
	Sig. (2-tailed)	0.000	0.197		0.000	0.420	0.746
	N	274	275	275	275	275	274
<b>Acquired Information on Organic Food</b>	Pearson Correlation	0.323 **	0.116	0.566 **	1	−0.148 *	0.002
	Sig. (2-tailed)	0.000	0.054	0.000		0.014	0.979
	N	275	276	275	276	276	275
<b>Diabetic Family Member</b>	Pearson Correlation	−0.065	−0.028	−0.049	−0.148 *	1	0.015
	Sig. (2-tailed)	0.283	0.639	0.420	0.014		0.809
	N	275	277	275	276	277	276
<b>Ordered Food Online in the Last Few Months</b>	Pearson Correlation	0.020	−0.138 *	−0.020	0.002	0.015	1
	Sig. (2-tailed)	0.745	0.021	0.746	0.979	0.809	
	N	275	277	274	275	276	277

\*\* . Correlation is significant at the 0.01 level (2-tailed). \* . Correlation is significant at the 0.05 level (2-tailed). Note: The number of observations are not equal due to missing data points because not all respondents provided answers to all the demographic/socio-economic characteristics.

The results regarding the factors that influence the respondents to order food from an online web portal are illustrated in Figure 3. Slightly more than two thirds (72%) of the survey respondents indicated the ease of ordering food online compared to other options as the most influential factor. This was followed by the time needed to process the order to obtain the food (15%), and the reduced risk of making a mistake when orders are made online, because orders appear on the computer screen for the provider, rather than via verbal communication. Overall, it is very clear that consumers' preference for ordering food online is because it is convenient to them and produces more utility and ease of information exchange. Therefore, this is expected to play an important role in the future for better communication between food sellers and buyers.



**Figure 3.** Factors that most influence the respondents to order food from an online web portal.

#### 4. Discussion

This research showed that consumers are increasingly using various formats of social media to obtain information on food quality. This research analyzed the consumers' attitude and behaviors, including the frequency of ordering food online and consumers' willingness to spend a considerable amount of money on such food orders.

This research focused on studying the correlation between the frequency of purchasing food online and the consumers' socio-economic characteristics, and the correlation between the frequency of purchasing food online and the consumer's special requests, as well as other useful statistical correlations to analyze the research topic. The research results indicated that more than half of the consumers included in the survey were willing to spend more than 100 Dhs (i.e., about 30 USD) on each online food order. This increased spending on ordering food online reflects the fact that consumers are using food services more frequently and allocating an increasing amount of spending to it. The results presented above showed that the younger generation, who are known to use social media more often, male heads of the household, and unmarried household members are most likely to order food online compared to other food consumers in the study area. The statistical analysis here showed the presence of a strong correlation between the frequency of ordering food online and the number of consumers who seek specific information, for example on food quality or for a special diet, for both medical and non-medical reasons. This indicates that exchanging information on food quality online expands the consumers' options, especially for those consumers who seek detailed information about food quality. Overall, using online services were found to offer the consumers more information and to expand consumers' options. However, the providers of such information need to consider the specific socio-economic characteristics of the consumer as well as the factors that influence their decision to use online food ordering services when planning their strategic food marketing. This study considered the impact of social media on the consumers and their responses and behavior towards ordering food online, and highlighted the factors that influence such responses. The authors noticed the potential and the need for more transparency and enhancement in relation to the information exchanged between online food providers and consumers, because the respondents indicated an inconsistency in the food quality information format between online food providing platforms.

Previous studies showed that use of social media facilitates the identification of customer profiles by businesses, therefore they gear their production to meet consumer preferences in the way they perceive certain food products [3]. A number of studies revealed the benefits and advantages to using social media for consumers and businesses, including social media's role in spreading more information between food producers and consumers [4]. The benefits of using social media include using social media to explain consumption or purchase choices [7]. Other benefits of using social media include uncovering new opportunities for food organizations and nutrition educators, who can expand their interaction with consumers and support their decision-making processes [8–10]. Social media use supports food businesses in gaining expanded sales [11]. Other studies showed both positive and negative effects of the increasing use of social media. For example, Abdullah et al. (2014) [5] noted that positive postings and reviews about a food brand may help build a firm's reputation and increase sales, but negative issues, rumors and lies may bring the opposite effect to another brand. However, all these previous studies considered consumers as one group and did not consider grouping such consumers, even though consumers are not homogenous. Consumer behavior, attitudes, and decisions to purchase are driven by their specific needs for information about food quality.

This research focused on analyzing consumer behavior by classifying the consumer's need to obtain further information about food quality when they order food online. This study discussed the correlation between the frequency of using social media to order food and the type of information consumers seek during this process. When the analysis of the survey results classified the consumers based on their preferred social media platform, this study found that social media platforms that offer detailed information on and visualization of food quality (e.g., Instagram) were preferred to other platforms that did not offer such information and visualizations. This study also revealed the strong

correlation between the frequency of using social media and special consumer groups who acquire specific information about food quality, such as those who would like to obtain information about special diets for both medical and non-medical reasons.

A limitation of this study, which may be considered in future research, is the fact that it did not investigate the impact and roles other stakeholders may play in enhancing the consumers' benefit from expanding opportunities to exchange food quality information. These other stakeholders include social media providers, food distributors, food and health organizations, nutrition educators, as well as food and agricultural businesses.

## 5. Conclusions

The results of this research are expected to contribute to the growing research body on marketing and consumer welfare and food security, particularly in urban areas. This research studied correlations in relation to the pros and cons of the phenomenon of ordering food online in terms of expand consumers' options. The objective of this research was to study the behavior and attitudes of consumers in the United Arab Emirates towards using the World Wide Web (WWW) for ordering food online, as well as consumers' perceptions about using social media (e.g., Facebook, Twitter, Instagram, and WhatsApp) to obtain useful information to aid their food purchasing decisions. This can be achieved by increasing the consumer's knowledge about their food quality options. This research highlights that exchanging information on food quality online expands the consumers' options, especially for those consumers who seek detailed information about food quality. The analysis of these research results showed evidence of the presence of a strong correlation between the frequency of ordering food online and the number of consumers who seek specific information about food quality attributes. These attributes include food quality information regarding special diets for medical or non-medical reasons and regarding organic food. These results are helpful to guide social media providers, food marketing and food distribution professionals, food and health organizations, nutrition educators, and agricultural businesses to better understand the contribution of online social media to consumer decision-making processes. For example, these findings can help organizations to develop appropriate marketing strategies that build effective information exchanges about food quality attributes. For an effective use of social media, marketers should understand their customers' motivations for using social media and develop effective strategies to enhance interaction with them, addressing the challenges raised by other studies, such as the need for prompt responses to consumer inquiries and complaints, designing a website using a content-based approach, as well as collecting social media measurement to enhance consumer access to food quality information. The authors found a potential for more transparency and the enhancement of the exchange of information between online food providers and consumers. The authors recommend a government intervention to monitor and standardize food quality information online to achieve the country's food security goal of better access to food quality information for consumers. This study highlights the need for further research that may include research into and the exploration of the impact of social media on the behavior of specific groups of consumers, such as children, in relation to specific food security dimensions such as obesity or malnutrition.

**Author Contributions:** E.F. contributed to designing the conceptual subject, the research material and methods, verification and data analysis, writing the manuscript, and addressed responses to review process. A.B. contributed designing the conceptual subject, supervising the survey design, supervised data collection, initial data analysis, and writing initial research project draft.

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**Conflicts of Interest:** The authors declare no conflict of interest.

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